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heard the distress calls, which was about 100 feet from the nest, and there went into hiding. At the time there were three adult hermits together. After ten minutes silence, I began to hear occasional faint little "peeps," which it was impossible to locate precisely. Presently, however, one of the little thrushes appeared from hiding and began to hop along the ground and fallen logs and to climb through the underbrush. Now and then the little fellow would fly two or three feet, from twig to twig, all the while pumping up and down his little cinnamon tail, so characteristic of all adult Hermits, and giving voice to an occasional "peep" for food. But when it received food from a parent, no sound was uttered by the young bird, neither did the parents use the *wee* note. Though I made a search of the vicinity the following morning, August 8, I could find no trace of the Hermit family.

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## WILD LIFE OF AN ALKALINE LAKE.

BY FLORENCE MERRIAM BAILEY.

THE few lakes of the arid region are peculiarly interesting as they attract hordes of migrating water birds that pass over the wide stretches of dry land, while affording nesting sites for many resident water birds, and feeding grounds for both birds and beasts of prey. A series of alkaline lakes in northern New Mexico near the continental divide was once visited by us during a fall migration and although we were unable to take a census of the water-fowl gathered there we had a most interesting experience.

The largest and most thickly populated of the lakes had been named from a sulphur spring with frank, western realism — Stinking Spring Lakes. From long and bitter experience with alkali we took warning from the name and stopped before reaching them to fill our canteens and water keg at a spring of less noisome reputation, where we found a like-minded Mexican boy with three burros, filling his kegs for a sheep camp.

The first lake on the road, reached just at sundown, suggested

a turquoise with a raised setting, being a round body of beautiful blue water lying between the cliffs of a cañon. Along its margin ducks were feeding but there was no protecting cover for a collector, and although one of the party crawled toward the birds with a disguising bunch of weeds on his hat, before he was within range they splashed off, rising heavily, and after flying around in close flocks like swarms of insects on a summer day disappeared through the yellow haze of the cañon gateway like a wedge of light. As we followed in their direction the cañon widened out to a great sagebrush basin with a rim of yellow pines. In the bottom of the basin lay the main lake, an irregular body of water about four miles long and in places a mile wide. Its shore as far as we could see was bare of cover and had a wide marginal mud flat bad for working purposes, so when we came to a small tule-bordered lake separated from it by a low ridge with passes, we promptly camped in an adjoining side gulch. Here to our surprise, we found sheltering cottonwoods, watered by the seep from the mesa, high untouched grama grass for the horses, and actually fresh rain water pools, after which the spring water which we had thought ourselves fortunate to get on the way seemed impossibly alkaline.

The tule-bordered lake was connected by a narrow channel with a bare lake at the end of which were several acres of low half submerged brown weeds that, while offering no cover to enemies afforded protecting shelter and a rich feeding ground to visiting ducks. Its advantages over the tule lake, from the birds' point of view, were demonstrated the morning after our arrival. As we came in sight of the tule lake Mr. Bailey stuck a high weed into a sagebrush and, gun in hand, crouched behind the screen while I sent stones splashing among the tules. Do my best, nothing would rise. As I walked on toward the bare lake, however, the instant my figure was sighted above the sagebrush there was a thrilling roar, and a great multitude of ducks rose from the concealing weedy border in which they had been feeding. Breaking up into flocks they circled and then rose and flew in black lines through the low passes of the sagebrush ridge to the main lake.

This experience determined our method of work. We wasted no more time at the tule lake unless in passing we chanced on some

stray bird that we wanted, when it was shot from the tule screen, though the water was cold and so deep that it was necessary to swim for one's game. Our work lay at the feeding ground and in the passes. The passes were a simple matter, for while Mr. Bailey lay in ambush in the sagebrush I went down to whichever lake promised best and by a series of rifle shots kept the black hordes moving across the passes. The only difficulties here were that a corps of men was needed to guard the crossings and that we were without duck shot — empty cartridges of former hunters strewing the ground pointed our discomfiture, for our ammunition was too light to penetrate the thickly padded bodies at their flying height. Work at the feeding ground on the other hand was difficult because of the lack of cover. We could not hope for a census of the water-fowl of the lake, but would do our best to get an idea of the most abundant species.

The excavated blinds that we discovered along the lake had been turned into wells by the recent rains and a brush blind was at best a suspiciously conspicuous object. It was our only hope, however, so gathering branches of sagebrush and greasewood, *Atriplex*, we stuck them into the ground, adding a row of white-seeded weeds that grew along the water's edge to give the touch of nature of which we were so sorely in need. While we were at work on the house no water birds came near the lake, but Bluebirds and a flock of Pipits, now down from the mountain tops making their southward journey, flew around among the surrounding brush and weeds.

When all was ready we entered the blind and after waiting quietly for some time with heads bent low under the screening aromatic branches, through the chinks we saw the ducks begin coming back to the lake. Then we would hear the whistling of a flock rushing through the air overhead, and after time enough for the birds to circle around the lake would hear a splash from those that plumped down and a seething sound from those that slipped in more quietly. If a heavy swish of wings made us give a guarded sidelong look upward we might see passing swiftly over a flock of from four to fifty ducks whose long outstretched necks made their wings seem short and set back on their heavy bodies. Teal and Gadwall were most abundant but Baldpates were also numerous,

and one company of long-necked Pintails, and two of Shovellers were noted. If a flock suspected our blind it would circle around and around overhead to inspect us. But as we made no sign, content for the time to watch through our field glasses, the lake gradually filled, becoming a busy place. Big Mallards or quiet and gently talkative flocks of little Teal would swim into the flooded weedy bottom to feed on its rich store of seeds, while other ducks splashed down in the middle of the lake to swim around in the open and feed on seeds of pigweed and smartweed under the surface.

In feeding the ducks would tip over on their bills leaving only their tails visible above the water. Three tails that we saw sticking up in a row above the water suggested a generalization on the directive value of the strikingly marked under tail coverts of ducks, for they might well serve as flags for the members of the fleet, and point to good feeding grounds. In the adult male Mallard black tail coverts and white tail quills were made more spectacular by the bright red feet that also stood in air.

To vary the monotony of swimming and standing on their bills, the birds with appetites appeased would preen their feathers or rise and stretch their necks and flap their wings. Two female Gadwalls out in the weeds with nothing better to do came to blows, twisting each other around by the bill in genuine pugilistic fashion. Once a big flock of Teal came rushing noisily out of the weeds followed shortly by a Marsh Hawk. Crows cawing over the lake were enough to raise a disturbance. But though the vast throngs were easily unsettled, if nothing came of it they circled around and settled back again. Sometimes they discriminated nicely, for when a Golden Eagle beat slowly down the lakes, though a few ducks went splashing away, most of them paid little or no attention to him and he went on quietly, lighting unobtrusively on a stub to be attacked by an abusive, indiscriminating Magpie.

Our blind was a success in enabling us to get a good general idea of the life on the lakes but too conspicuous for the birds to come within range in broad daylight—it was evident that we must enter it before sunrise and shoot at dawn. So although loath to disturb the happy water-fowl gathered on their feeding ground

we came out of our brush house and started home. The wind was blowing hard and on the tule lake the coots were huddled in black masses or snugly riding the waves with a great show of bobbing. During the day a variety of birds were seen in the surrounding country which included open plains, juniper orchards and yellow pine woods, sandstone ledges, bottom lands and marshes that attracted in turn Marsh Hawks, Killdeer, Meadowlarks, Rock Wrens, Woodpeckers, Jays — crested and uncrested — Solitaires, Kinglets, Western Chipping Sparrows, Chewinks, Goldfinches, Mourning Doves, and Horned Larks.

That night with our early morning hunt on our minds we woke at intervals mistaking the moonlight for dawn, and by 4.40 with blankets wrapped around us and guns in hand were starting for our blind, an almost imperceptible line of light in the east telling us that we were just on time. As we stumbled over the stony trail along the cliff on our way to the lake our horse bell jangled drowsily, and an owl hooted; while across the big lake a sheep bell tinkled, and from the moonlit hills came the yapping of coyotes. As we rounded the corner of the tule lakes the Coots cackled, making us turn off through the sagebrush to stop their telling tales. By a long detour, picking our way through sagebrush interspersed with cactus, our blanketed figures casting accompanying shadows in the moonlight, we finally came to the shore. The moon was partly obscured by clouds and we crept silently toward our blind, but nevertheless the nearer ducks saw us and with a disheartening roar flock after flock arose.

Once inside we straightened up the bushes, drew our blankets close around us, for the water gave the air a penetrating chill, and settled ourselves for an hour of waiting. As we got colder and more cramped a band of light grew in the east till at last it was reflected in the lake, the stars faded out of the sky, and the dark vault began to lighten. Meanwhile the ducks gradually returned and those that lit down the lake under cover of the dim light swam up so close that by peering through the chinks in our brush screen we could distinguish the species, making it unnecessary to shoot. An old Mallard feeding in the weeds with the Green-winged Teal acted as a good decoy, her barnyard *quack* calling her friends; but though the thin slazy note of the male answered her, he would not join her.

When the sky had lightened to blue a faint white mist rose over the cold water. On the previous morning the ducks had been seen lined up along the shore sunning themselves in the first light, but though we hoped they might come again, our brush house prevented. When it was light enough to see the sights of the gun it was time to shoot — alas for the necessity! At the first report the whole lake seemed to rise, and after the last shot not a duck was left, the vast multitudes having crossed over the passes to the main lake. If we would get any more we must follow them. Collecting his few specimens Mr. Bailey climbed a pass while I went down to the shore of the large lake with the rifle to start up the birds again. From a stretch of weedy shore where there was not a duck in sight, at the shot myriads arose. They formed in compact flocks and started off, most of them in their alarm following down the expanse of the larger lake, a few coming back over the pass. Once at a startling rush of wings I looked up and saw a flock descending with a speed that almost took my breath away. A few moments later there was a sudden whistling overhead and — a band of white forms vanished as they came. Were they Whistlers? We had added several species and a few desirable specimens to our list by our early rising, but best of all we had shared the beauty and life of the lake at dawn, and now turned homeward with a sense of rare enrichment.

After our experience with the vast throngs of excitable migrating water-fowl, breaking away with a roar if a crow cawed, rising in thundering multitudes if a gun went off along shore, it was a grateful relief to come back to the tule-bordered lake where the phlegmatic Coots and Ruddy Ducks were at home on their breeding grounds, and the tules were full of happy songsters. In the early morning sunshine the chattering, rattling songs of merry Marsh Wrens bubbled over all down the tule line as we passed, a little brown form appearing for a moment in explanation of a shaking tule, a white spot at the base of a stalk proving the breast of a watchful wren, or a brown flash from the weeds under our feet telling where a hungry mite was breakfasting — while other brown merrymakers went on gaily scraping their fiddle strings. Glimpses of brown forms a size larger clambering around among the tule stems went with the thin chip of the Lincoln's Sparrow

or the rich, honest call note of the Song Sparrow. In a fortunate moment we got a flash of color from a sprightly Yellow-throat. More frequently from the tules we flushed the quaint Carolina Rails that slanted up with droll, heavy-bodied, short-winged flight, to speedily drop down losing themselves among the myriad stems of their safe cover. When surprised in the yellow-green weeds outside the tules they buzzed back to them before our eyes. When a gun went off near one it would give a shrill scream, and during the mornings their strident laugh was often mingled with the talk of Coots and the quacking of ducks.

As we walked along behind the tule hedge a confusion of most remarkable sounds came from the tules where invisible Coots were swimming about — coughing sounds, frog-like plunks, and a rough sawing or filing *kuk-kawk'-kuk, kuk-kawk'-kuk*, as if the saw were dull and stuck. Often there was just a grating *kuk-kuk-kuk-kuk-kuk-kuk*. But all the mixed medley had the sound of good fellowship, and, too, an open fearless disregard of who might be passing the other side of the tule screen — for who wanted Coots? Glimpses of open water showed the whole surface of the lake dotted with moving forms, and in the cool crisp morning air while the water at the foot of each tule was sparkling, every duck on the lake made a glistening point of light. The oval slaty Coots with black necks and white bills before them sat the water like toy ducks, diving and swimming about making intersecting wedge-shaped wakes; while the chunked little Ruddy Ducks, the males with handsome ruddy bodies, sat with spread fantails sticking straight up, often with their stocky heads over their shoulders so the clear white cheek patches showed across the lake.

Downy young Ruddies were seen swimming around among the tules with their parents although it was September, and half grown birds were among the groups of Coots. Redheads had also probably bred in the tule lake for they were often seen with the Coots and Ruddies feeding out in the deep water where the pond weed, *Potamogeton*, grew under the surface. As we walked around the lake all the migrating ducks flew before us, but the Redheads would gather with the Coots and Ruddies, the dark horde merely shifting as we did from one end of the lake to the other. If hard pressed the screaming Coots would go splashing across the water



kicking and slapping it white with their feet, but the Redheads, sometimes even when shot at, would merely tip over on their bills and disappear.

In the midst of this dark horde of Coots, Ruddies, and Redheads — phlegmatic, fat, slow-moving — there suddenly appeared three spirit-like Phalaropes with white breast and slender shining white throat; delicate, exquisite, vivacious creatures, facing quickly from one side to the other, bending their beautiful necks to reach some floating morsel — swimming, darting over the water — their heads moving like doves as they went. They were seen swimming about the lake for two days but then followed a day of cold rain and they disappeared, doubtless continuing their southward journey. A few traveling Grebes also made short stops at the lake on their way south.

The same storm that drove the phalaropes south and which whitened the Colorado mountains north of us brought big flocks of blackbirds, Brewer's and Red-wings, to the lakes. We found them going to roost one night. The sun had already dropped out of sight and the darkened hills behind the lake were edged with yellow under a delicately flushed sky, the picture being reflected in the lake below; while long, insect-like strings of ducks were passing to their nightly feeding grounds and dark forms whistling by overhead. As we rounded the tule lake on our way to camp several large black flocks swung around close in front of us, dropping down among the tules and settling themselves noisily for the night. Migrants of all kinds were now on the wing. Before the cold storm a flock of about a hundred of the cliff-dwelling White-throated Swifts had been seen flying south high over the lakes.

The myriads of birds that gathered at these lakes naturally attracted hawks and owls and predatory mammals. In walking along shore we followed tracks of foxes and lynx, and fresh deep footprints of coyotes around the tules. Holes dug by skunks and badgers for beetles, gophers, and kangaroo rats were also found; the holes and mounds of the small mammals on the shore and on the sagebrush ridges. Trapping brought good results here, two coyotes, two badgers, and four skunks being taken, besides gophers, wood and kangaroo rats, and smaller game.

When trapping for the mammals we scared up the birds of the

brush. Western Savanna Sparrows flew shyly before us from sagebrush to sagebrush, Sage Thrashers disappeared with long low flights over the bushes, and at one time a Sage Sparrow led us a chase. Along the weedy lake border a Shrike and a flock of Longspurs were seen, and on the shore of the main lake one evening a buffy immature Mountain Plover was taken near where a flock of sandpipers were feeding. Across the width of the lake Mr. Bailey detected the honking of Canada Geese, and afterwards was fortunate enough to see five of the splendid great birds feeding at the foot of the lake. A beautiful Ring-billed Gull was also seen there. Though less interesting than our small lakes, this great lake, where these noble birds felt secure, had a charm of its own with its wide shore line, its broad expanse—for in arid New Mexico it seemed a veritable Ontario—and its ever-shifting, broken lines of water-fowl. Its shore in the late afternoon when the hills to the south were dark purple was flooded with slanting yellow light, and as the sandpipers were peeping and making short skimming flights along the beach, the marginal weedy border glowed a vivid yellow-green and the sagebrush hills behind were lit up till we looked upon a glowing golden shore. It was one of the moments that one could imagine feathered wanderers from home might remember, one of the moments that earlier in the year move enraptured birds to outbursts of ecstatic song.

But some birds' flights of fancy, it would seem, are not controlled by the almanac, for on one of our most autumnal mornings before my bewildered vision a Raven, a most matter-of-fact bird one would suppose, rose circling into the air higher and higher till its big black form began to grow small; as it rose, uttering a low rhythmic croaking, most vernal in its enraptured suggestion.

The lakes with their strongly alkaline water were of little interest to some of the birds. A passing kingfisher whom we discovered one morning on a dead tree above the tule lake looked sadly out of place and, we fancied, rattled disconcertedly. In any case, before night the poor disillusioned wanderer, as if reduced to extremity, was perched on a tree over our muddy camp rain pools! The next morning he was nowhere to be seen.

Small and muddy as our pools were they not only afforded water for ourselves and the thirsty horses, but for flocks of passing land

birds not addicted to mineral water. Rich dark Bluebirds, the Chestnut-backed, in their fresh fall dress drank from the pools and perched in the pine trees, a large flock of Robins came flying into our sunlit cottonwoods one morning, and for two days a flock of cheery Siskins drank and bathed in the pools and sang in the sunny tree tops above them. House Finch notes were heard and Audubon Warblers were seen dashing about as distractedly as ever, Chickadees and Pygmy Nuthatches were in the cottonwoods, and Juncos hunting over the ground, while Pileolated Warblers delighted our eyes by flashes of gold among the bushes. Magpies were often seen of a morning sitting in the sun talking and half singing a contented warble.

All these birds belonged to the day shift, but at sunset the night shift of owls began work. On a tree overlooking the tule-bordered lake we found a Great-horned Owl just waking up for his day's work when night was coming on, the sky behind the black hills having deepened from yellow to orange, the water in the lake having the cold steely light of night, only a touch of sunset warmth being left in small rosy cloudlets mirrored on the surface. One of the large nocturnal hunters visited our camp. His scream was heard from the cliff above us when, having hunted in the passes for the sunset shift of ducks, we were eating a belated supper. As we raised our eyes he came flying over on great widespread wings, lighting almost above our heads in a big cottonwood whose trunk stood out black against the rich yellow sunset light; and there he sat like a black statue, his dark body and high ears against the yellow sky, screaming in falsetto while we gazed at him. Discovering us, he retreated a little, but attracted it may be by our blazing camp fire lingered near. Indeed, camp had become quiet for the night before his cry, the falsetto scream so often attributed by terrified campers to the mountain lion, growing fainter and fainter died out in the distance. At another camp at dusk we caught sight of one of the Great-horned Owls perched on the mast-like top of a dead pine. As he hooted, he tipped up his tail and dropped his wings, making a most animated figure. Still another of the owls was discovered one night facing the rising full moon. Did he prize it for his work, we wondered, as did other mammalogists?